symptomatic relief and restoration of quality of life, because only a privileged minority receive transplants, transplantation alone cannot solve the increasing public health problem of end stage heart failure. The future probably lies in further development of alternative treatments—time will tell whether these will eventually eclipse transplantation of the human heart.

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The health of indigenous peoples

Depends on genetics, politics, and socioeconomic factors

When launching the international decade for the world's indigenous peoples in 1994, the president of the United Nations General Assembly warned of the dire circumstances facing indigenous peoples: "Their social structures and lifestyles have suffered the repercussions of modern development."[1] Although there is no single definition of indigenous peoples, an ancient relationship with a defined territory and ethnic distinctiveness are two distinguishing features. There are some 5000 indigenous groups with a total population of about 200 million, or around 4% of the global population.[2]

The 1999 Declaration on the Health and Survival of Indigenous Peoples by the World Health Organization proposed a definition of indigenous health: "Indigenous peoples' concept of health and survival is both a collective and an individual inter-generational continuum encompassing a holistic perspective incorporating four distinct shared dimensions of life. These dimensions are the spiritual, the intellectual, physical, and emotional. Linking these four fundamental dimensions, health and survival manifests itself on multiple levels where the past, present, and future co-exist simultaneously."[3]

Although the standards of health of indigenous peoples show differences, similarities exist in worldviews, patterns of disease, health determinants, and healthcare strategies. In the 18th and 19h centuries, for example, groups as diverse as Maori in New Zealand, Australian Aborigines, native Hawaiians, the Saami of Norway, native Americans, and the First Nations of Canada were nearly decimated by infectious diseases including measles, typhoid fever, tuberculosis, and influenza.[4] For the First Nations, epidemics of smallpox produced even greater suffering.[5]

By the mid-20th century, however, following the near universal experience of urbanisation other health risks emerged. While communicable diseases continue to affect large indigenous populations, vulnerability to injury, alcohol and drug misuse, cancer, ischaemic heart disease, kidney disease, obesity, suicide, and diabetes have become the modern indigenous health hazards.[6]

Notwithstanding changes in statistical definitions and variable practices of enumeration, which make comparisons difficult, inequalities in health status are an important measure of the quality of the health system. Indigenous populations generally have a lower life expectancy than non-indigenous populations, a higher incidence of most diseases (for example, diabetes, mental disorders, cancers), and experience of third world diseases (tuberculosis, rheumatic fever) in developed countries.[7]

Leaving aside views of early colonists about "backward peoples,"[8] explanations for current indigenous health status can be grouped into four main propositions: genetic vulnerability, socioeconomic disadvantage, resource alienation, and political oppression. Genetic causes have been investigated in diabetes, alcohol related disorders, and some cancers, although they are generally regarded as less significant than socioeconomic disadvantage, which is often central to contemporary indigenous experience. Poor housing, low educational achievement, unemployment, inadequate incomes, are known to correlate with a range of lifestyles that predispose to disease and injury.[9] Alienation from natural resources along with environmental degradation has also been identified as a cause of poor health while cultural alienation has been recognised as an important consideration for effective health care.[10]

Where doctor and patient are from different cultural backgrounds the likelihood of misdiagnosis and non-compliance is greater. Several writers have drawn a link between colonisation and poor health.[11] They argue that loss of sovereignty along with dispossession (of lands, waterways, customary laws) has created a climate of material and spiritual oppression with increased susceptibility to disease and injury.

All four propositions can be more or less justified and conceptualised as a causal continuum. At one end are "short distance" factors, such as the impacts of abnormal cellular processes, whereas at the other end are "long distance" factors, including government

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policies and the constitutional standing of indigenous peoples. Values, lifestyles, standards of living and culture, so important to clinical understandings, lie midway.

Health workers are more familiar with short and mid-distance factors, but improving the health of indigenous peoples requires a broad approach covering a wide spectrum of interventions. The Declaration of Health and Survival recommends several strategies including capacity building, research, cultural education for health professionals, increased funding and resources for indigenous health, a reduction in the inequities accompanying globalisation, and constitutional and legislative changes by states.

Many indigenous groups have emphasised autonomy and self determination and have given priority to developing an indigenous health workforce that has both professional and cultural competence. They have also promoted the adoption of indigenous health perspectives, including spirituality, in conventional health services. Traditional healing has been suggested as a further strategy though generally as part of comprehensive primary health care and in collaboration with health professionals.[12] However, while access to quality health care is important, socioeconomic and macropolitical interventions may have greater potential for improving the health status of indigenous peoples.

As the international decade for the world's indigenous peoples which began in 1994 moves towards its final year, a major theme of the third Asia Pacific Forum on Quality Improvement in Health Care to be held in New Zealand in September 2003, will be indigenous health issues especially as they apply to Maori and Pacific peoples. The *BMJ* will also publish a theme issue on 9 August 2003 on the health of indigenous people from all over the world—not just New Zealand—and invites original research papers on the topic. Papers should be submitted to www.submit.bmj.com and the editorial contact is Rajendra Kale (rkale@bmj.com). The guest editors will be Chris Cunningham and Fiona Stanley.

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Neurocysticercosis

Eradication of cysticercosis is an attainable goal

Neurocysticercosis is a disease of large proportions; in most developing countries, with the exception of the Muslim world, neurocysticercosis is by far the main cause of epilepsy with a late onset and of hydrocephalus in adults.[1] In the past 20 years two developments have drastically improved the gloomy picture that was associated with neurocysticercosis in the past: neuroimaging studies and the advent of effective cysticidal drugs. Computed tomography and magnetic resonance are now the cornerstone tools for diagnosing neurocysticercosis, and two drugs, albendazole and praziquantel, are inexpensive, effective cysticidals and are not toxic.[2] Pharmacological treatment is now widely accessible and effective even in cases of giant cysticerci or ventricular cysts, which used to be the exclusive domain of neurosurgery.[3]

However, a new paradox has emerged. Although drug treatment is inexpensive, neuroimaging is unaffordable for many patients in endemic areas. Immunodiagnostic tests using serum, which theoretically would represent a logical alternative for screening and diagnosis, have been abandoned in many neurological centres because of their poor reliability.[4] Currently they are used mostly for epidemiological studies.[5] In a large proportion of patients with neurocysticercosis, the clinical picture—epilepsy in most instances—is due to granulomas or calcifications as permanent sequelae of cysticerci that have already been eliminated by the immune system of the patient.[6] In these patients immunodiagnostic tests are erratic, cysticidal treatment redundant, and many patients will require lengthy treatment for epilepsy.[2]

Neurocysticercosis offers interesting perspectives for research in immunology and parasitology. For example, humans are the only definitive hosts that harbour both forms of disease: intestinal colonisation with *Taenia solium* caused by the adult cestode and cysticercosis mainly in muscles, eye, and brain caused by the embryo. The resulting diseases represent an encounter between the most evolved mammal and the most evolved parasite; the consequence is an intricate pathology.[1] In immunocompetent hosts the response is

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